PATENT Serial No. 09/734,228 Attorney Docket No. 450117-02965

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) Method for recognizing speech, comprising: the steps of

(a)[[-]] receiving a speech phrase;

(b)[[-]] generating a signal being representative to said speech phrase;

(c)[[-]] pre-processing and storing said signal with respect to a determined set of rules;

(d)[[-]] generating from said pre-processed signal at least one series of hypothesis speech elements;

(e)[[-]] determining at least one series of words being most probable to correspond to said speech phrase by[[-]] applying a predefined language model to <u>said</u> at least <u>said one</u> series of hypothesis speech elements,

wherein the step of determining said at least one series of words further comprises the steps of:

(1)[[-]]-at first-determining at least one sub-word, word, or a combination of words most probably being contained as a seed sub-phrase in said received speech phrase; and

(2)[[-]] then continuing determining words or combinations of words, and which are consistent with said seed sub-phrase as at least a first successive sub-phrase which is contained in said received speech phrase, by using and evaluating additional and paired and/or higher order information between the sub-phrases, thereby decreasing the burden of searching.



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2. (original) Method according to claim 1, characterized in that a predefined language model is applied to at least said series of hypothesis speech elements to obtain said seed subphrase and said additional and paired and/or higher order information is obtained from said language model.

3. (previously presented) Method according to claim 1, characterized in that as additional information within that language model semantic and/or pragmatic information or the like between the sub-phrases is used.

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4. (previously presented) Method according to claim 1, characterized in that additional information within said language model is used being descriptive for the prepositional relationship of the sub-phrases.

- 5. (previously presented) Method according to claim 1, characterized in that additional information within that language model is used being descriptive for pairs, triples and/or higher order n-tuples of sub-phrases.
- 6. (previously presented) Method according to claim 1, characterized in that a language model is used containing at least a recognition grammar built up by at least a low-perplexity part and a high-perplexity part, each of which being representative for distinct low- and high-perplexity classes of speech elements.

- 7. (original) Method according to claim 6, characterized in that word classes are used as classes for speech elements or fragments.
- 8. (currently amended) Method according to claim 1, characterized in that a language model is used containing a low-perplexity recognition grammar being obtained from a conventional recognition grammar by
- (a)[[-]] identifying and extracting word classes of high-perplexity from the conventional grammar,
- (b)[[-]] generating a phonetic, phonemic and/or syllabic description of the high-perplexity word classes, in particular by applying a sub-word-unit grammar compiler to them, to produce a sub-word-unit grammar for each high-perplexity word class and
- (c)[[-]] merging the sub-word-unit grammars with the remaining low-perplexity part of the conventional grammar to yield said low-perplexity recognition grammar.
- 9. (previously presented) Method according to claim 1, characterized in that a hypothetic graph is generated for the received speech phrase including the generated sub-phrases and/or their combinations as candidates for the recognized speech phrase and that additional information between the sub-phrases is used to constrain and to restrict the search for the most probable candidate within the graph.
- 10. (original) Method according to claim 9, characterized in that during the search candidate sub-phrases or sub-words from the high-perplexity word classes are inserted into the



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hypothesis graph, whereby the sub-word unit grammars for the high-perplexity word classes are used as constraints as well as the respective additional semantic and/or pragmatic information.

11. (original) Method according to claim 10, characterized in that according to the constraints candidates are deleted from the hypothesis graph until an unbranched resulting graph is generated, corresponding to the most probable phrase.



12. (previously presented) Method according to claim 1, characterized in that the vocabulary - in particular of said language model - applicable for the remaining parts of the speech phrase besides the seed sub-phrase is restricted at least for one remaining part so as to decrease the burden of search.